

I. *By way of review, remember markets will fail to provide efficient outcomes when there is market failure.*

- A. *Market failure will occur when*
1. *there are externalities.*
 2. *firms have market power,*
 3. *there are public goods, or*
 4. *information is costly.*

II. Externalities

A. Externalities can be negative-when the action of one party imposes costs on another party-or positive-when the action of one party benefits another party.

B. Negative Externalities and Inefficiency

1. Pollution is an example.
2. Because externalities are not reflected in market prices, they can be a source of economic inefficiency.
 - a. Private decisions: $MC = P$.
 - b. Public preferred decisions: $MSC (MEC + MC) = P$.
 - c. **Figure 18.1: External Costs, p. 642.**
 - (1) This shows the situation with only one firm and within an industry.
3. Too much is produced and the price is too low.

C. Positive Externalities and Inefficiency

1. Examples are home repairs and landscaping.
 - a. Private decisions: $MC = D$.
 - b. Public preferred decisions: $MSB (MEB + D) = MC$.
2. Externalities can also result in too little production.
3. **Figure 18.2: External Benefits, p. 644.**

III. Ways of Correcting Market Failure

A. *The efficient level of emissions is where the incremental benefits of abatement are equal to the incremental costs of abatement.*

1. $MSC = MCA$
 - a. **Figure 18.3: The Efficient Level of Emissions, p. 646.**

B. *Economists like methods that create incentives for firms to continually search for more efficient outcomes.*

C. An emissions standard is a legal limit on how much pollutant a firm can emit.

1. *A standard can refer to an amount or a method.*
2. *This is particularly unattractive to economists.*

D. An emissions fee is a charge levied on each unit of a firm's emissions.

1. *Properly implemented, this gives firms incentives to make lower cost methods to abate and to only pollute when the costs exceed the benefits.*

E. Standards Versus Fees

1. **Figure 18.4: Standards and Fees, p. 647.**

2. The Case for Fees:
 - a. When abatement costs differ among firms.
 - b. Fees also encourage the consideration of more efficient methods of abatement.
 - c. **Figure 18.5: The Case for Fees, p. 648.**
 - d. Each firm only abates so long as the benefits exceed the costs.
 - e. *They are particularly attractive when firms face different costs of abatement.*
 3. The Case for Standards:
 - a. Best when the costs and benefits of abatement are unclear.
 - b. **Figure 18.6: The Case for Standards, p. 649.**
 - c. When there is limited information and the MSC is inelastic and the MCA is elastic, then standards are preferred to fees.
- F. Transferable Emissions permits
1. *Go back to Figure 18.5.*
 - a. *If both firms were given the “right” to 7 units of pollution, the lower cost abater would have an incentive to sell some of its rights to the higher cost abater.*
 - b. *The result would be a given level of pollution at a lower cost.*
- G. **Example 18.1: The Costs and Benefits of Reduced Sulfur Dioxide Emissions, p. 651.**
1. At the chosen level, the MCA was less than the MSC.
 2. **Figure 18.7: Sulfur Dioxide Emissions Reductions, p. 652.**
- H. **Example 18.2: Emissions Trading and Clean Air, p. 653.**
1. Economists like the “bubble” and “offset” programs.
 - a. The bubble program is within a firm, while the offset program is often among firms.
 - b. There can be substantial efficiencies with these program as illustrated by Dupont.
 2. **Figure 18.8: Price of Tradeable Emissions Permits, p. 654.**
- I. Recycling
1. MSC is more than private MC.
 2. An attractive method to use is a refundable fee, which increases the cost of creating scrap and encourages recycling.
 3. **Figure 18.9: The Efficient Amount of Recycling, p. 656.**
 - a. Scrap is on the horizontal axis.
 4. **Figure 18.10: Refundable Deposits, p. 657.**
 - a. Deposits encourage recycling which increases the supply and lowers the price.
- J. **Example 18.3: Regulating Municipal Solid Wastes, p. 658.**
- IV. Externalities and Property Rights
- A. *This is a different perspective, but private resolution of these problems is usually difficult because of the large number of people involved.*

1. *Correction is often a public good.*
- B. Property rights are the legal rules that describe what people or firms may do with their property.
 1. *Externalities occur when property rights are not clearly defined.*
- C. Bargaining and Economic Efficiency
 1. Economic efficiency can be achieved without government intervention when the externality effects relatively few parties and when property rights are well defined.
 2. When parties can bargain without cost and to their mutual advantage, the resulting outcome will be efficient, regardless of how the property rights are specified.
 3. **Table 18.1: Profits Under Alternative Emissions Choices, p. 659.**
 - a. The alternatives are the factory to install a filter or the fishermen to install a water treatment plant.
 - b. When transaction costs are low, an efficient outcome will occur is called the Coase Theorem.
 - c. The filter costs \$200 and the plant costs \$100.
 - d. In this case, the efficient outcome is Filter, No Plant and Profits of 800.

	Factory Profit	Fishermen's Profit	Total Profit
No Filter, No Plant	500	100	600
Filter, No Plant(*)	300	500	800
No Filter, Plant	500	200	700
Filter, Plant	300	300	600

4. **Table 18.2: Bargaining with Alternative Property Rights, p. 660.**
- D. Costly Bargaining-The Role of Strategic Behavior
 1. The strategic behavior can lead to an inefficient, non-cooperative outcome
- E. A Legal Solution-Suing for Damages forces the parties to recognize the costs of their actions.
 1. *However, litigation can be expensive—it is a transaction costs.*
- F. **Example 18.4: The Coase Theorem at Work, p. 662.**
 1. An example from NYC and New Jersey.

- V. Common property resources are those to which anyone has free access.
 - A. Consider the characteristics of goods:

		Rivals	
		Yes	No
Exclusive	Yes	Private Good	Natural Monopoly
	No	Common Resource	Public Good

- B. This can result in the “tragedy of the commons,” because the MSC are greater than the private MC.
1. As a result they can be over-utilized.
 2. It has been used to analyze overgrazing on Navaho land.
 - a. A herder gets all the benefits of grazing an additional sheep, but only incurs a pro rata share of the costs.
- C. **Figure 18.11: Common Property Resources, p. 663.**
1. The private costs are less than those of society, so too much “production” occurs.
- D. **Example 18.5: Crawfishing in Louisiana, p. 663.**
1. **Figure 18.12: Crawfish as a Common Property Resources, p. 664.**

VI. Public Goods

- A. Public goods have two characteristics:
1. They are non-rival and
 2. nonexclusive.
- B. A good is non-rival if for any given level of production, the marginal cost of providing it to an additional consumer is zero.
- C. A good is nonexclusive if people cannot be excluded from consuming it.
1. Some goods are exclusive but non-rival.
 - a. An example is a bridge other than at rush hour.
 - (1) *This is a natural monopoly.*
 2. Some goods are nonexclusive but rival.
 - a. An example is a lake from which people cannot be excluded, but people are rivals for the fish in the lake.
 - (1) *This is a common resource.*
- D. Efficiency and Public Goods
1. The demand curve is derived by adding individual demand curves vertically.
 2. People have incentives to want others to produce these goods.
 3. It is difficult to get a clear understanding of the value that people place on these goods because they do not have to pay based on their preferences.
 4. **Figure 18.13: Efficient Public Good Provision, p. 667**
- E. Public Goods and Market Failure
1. People are inclined to free ride on the efforts of others.
- F. **Example 18.6: The Demand for Clean Air, p. 668.**

1. **Figure 18.14: The Demand for Clean Air, p. 669.**

VII. Private Preferences for Public Goods

A. **Figure 18.15: Determining the Level of Educational Spending, p. 670.**

B. Majority Rule Voting:

1. Under majority rule voting, the preferred spending level of the median voter will always win an election against any other alternative.
2. Majority rule is inefficient because it weighs each citizen's preference equally—the efficient outcome weighs each citizen's vote by his or her strength of preference.